

**WHAT IS CLAIMED IS:**

- 1     1.     A data processing method, comprising steps of:  
2             providing a first device comprising a communicator having a first  
3     interface function and a second interface function defined in an asymmetric  
4     interface standard;  
5             connecting a second device to the first device;  
6             detecting whether the second device has at least one of the first  
7     interface function and the second interface function;  
8             transmitting data, from the first device to the second device, through  
9     use of the first interface function, in a case where it is detected that the second  
10    device has the second interface function; and  
11            transmitting a signal for processing the data, from the first device to  
12    the second device, through use of the second interface function, in a case  
13    where it is detected that the second device has the first interface function.
- 1     2.     The data processing method as set forth in claim 1, wherein the data  
2     includes at least one of image data, music data and motion picture data.
- 1     3.     The data processing method as set forth in claim 1, wherein:  
2             it is detected that the second device has the first interface function in  
3     a case where a first type connector of a cable defined under the interface  
4     standard is connected to the communicator; and  
5             it is detected that the second device has the second interface function  
6     in a case where a second type connector of a cable defined under the

7 interface standard is connected to the communicator.

1 4. The data processing method as set forth in claim 1, wherein:  
2 the interface standard is an On-The-Go standard of a USB;  
3 the first interface function is a device-side interface function of the  
4 USB; and  
5 the second interface function is a host-side interface function of the  
6 USB.

1 5. The data processing method as set forth in claim 1, wherein each of  
2 the steps of transmitting the data and the signal is performed on the basis of  
3 one of a plurality of USB classes in accordance with at least one of a type of  
4 the second device and an application executed in the second device.

1 6. The data processing method as set forth in claim 4, further comprising  
2 steps of:  
3 detecting whether the first interface function and the second interface  
4 function are assigned to the first device and the second device correctly; and  
5 activating a negotiation protocol in a case where it is detected that the  
6 first interface function and the second interface function are incorrectly  
7 assigned, so that each of the first device and the second device has the other  
8 one of the first interface function and the second interface function.

1 7. The data processing method as set forth in claim 6, wherein the first  
2 device is a digital camera device, and the second device is a PDA device

3       having both of the first interface function and the second interface function.

1       8.       The data processing method as set forth in claim 6, wherein the first  
2       device is a digital camera device, and the second device is a printer having  
3       both of the first interface function and the second interface function.

1       9.       The data processing method as set forth in claim 1, wherein:  
2               the step of transmitting the data is performed in a case where the first  
3       device is a digital camera device and the second device is a printer having a  
4       host-side interface of a USB; and  
5               the step of transmitting the signal is performed in a case where the  
6       first device is a digital camera device and the second device is a printer having  
7       a device-side interface of the USB.

1       10.      A data processing method, comprising steps of:  
2               providing a first device comprising a communicator having a first  
3       interface function and a second interface function defined in an asymmetric  
4       interface standard;  
5               connecting a second device to the first device;  
6               detecting whether the second device has at least one of the first  
7       interface function and the second interface function;  
8               transmitting data, from the first device to the second device, through  
9       use of the first interface function, in a case where it is detected that the second  
10      device has the second interface function; and  
11              exchanging the data, between the first device and a storage in the

12 second device, through use of the second interface function, in a case where it  
13 is detected that the second device has the first interface function.

1 11. The data processing method as set forth in claim 10, wherein the data  
2 includes at least one of image data, music data and motion picture data.

1 12. The data processing method as set forth in claim 10, wherein:  
2 it is detected that the second device has the first interface function in  
3 a case where a first type connector of a cable defined under the interface  
4 standard is connected to the communicator; and  
5 it is detected that the second device has the second interface function  
6 in a case where a second type connector of a cable defined under the  
7 interface standard is connected to the communicator.

1 13. The data processing method as set forth in claim 10, wherein:  
2 the interface standard is an On-The-Go standard of a USB;  
3 the first interface function is a device-side interface function of the  
4 USB; and  
5 the second interface function is a host-side interface function of the  
6 USB.

1 14. The data processing method as set forth in claim 10, wherein each of  
2 the steps of transmitting the data and the signal is performed on the basis of  
3 one of a plurality of USB classes in accordance with at least one of a type of  
4 the second device and an application executed in the second device.

1 15. The data processing method as set forth in claim 13, further  
2 comprising steps of:

3 detecting whether the first interface function and the second interface  
4 function are assigned to the first device and the second device correctly; and  
5 activating a negotiation protocol in a case where it is detected that the  
6 first interface function and the second interface function are incorrectly  
7 assigned, so that each of the first device and the second device has the other  
8 one of the first interface function and the second interface function.

1 16. The data processing method as set forth in claim 15, wherein the first  
2 device is a digital camera device, and the second device is a PDA device  
3 having both of the first interface function and the second interface function.

1 17. The data processing method as set forth in claim 15, wherein the first  
2 device is a digital camera device, and the second device is a printer having  
3 both of the first interface function and the second interface function.

1 18. The data processing method as set forth in claim 1, wherein:  
2 the step of transmitting the data is performed in a case where the first  
3 device is a digital camera device and the second device is a printer having a  
4 host-side interface of a USB; and  
5 the step of exchanging the data is performed in a case where the first  
6 device is a digital camera device and the second device is a printer having a  
7 device-side interface of the USB.

1     19.     A data processing method, comprising steps of:  
2             providing a first device comprising a storage which stores data therein,  
3             and a communicator having a device-side interface function of a USB;  
4             connecting a second device to the first device;  
5             selecting one of a plurality of USB classes in accordance with at least  
6             one of a type of the second device and an application executed in the second  
7             device; and  
8             transmitting the data, from the first device to the second device,  
9             through use of the device-side interface function and based on the selected  
10            one of the USB classes.

1     20.     The data processing method as set forth in claim 19, further  
2             comprising steps of:  
3             providing, in the first device, a plurality of interface descriptors each of  
4             which is associated with one of the USB classes; and  
5             transmitting all of the interface descriptors, in a case where the  
6             second device is adapted to at least one of the USB classes.

1     21.     The data processing method as set forth in claim 20, wherein the  
2             interface descriptors includes:  
3             a first interface descriptor for a first USB class used in a case where  
4             the second device is a printer having a host-side interface function of the USB;  
5             and  
6             a second interface descriptor for a second USB class used in a case

7 where the first device serves as an external storage of the second device.

1 22. The data processing method as set forth in claim 21, wherein the first  
2 USB class is a still image capture device class, and the second USB class is a  
3 mass storage class.

1 23. The data processing method as set forth in claim 19, further  
2 comprising steps of:

3 providing, in the first device, a first interface descriptor associated  
4 with a USB class, and a second interface descriptor associated with a  
5 vendor-extended USB class corresponding to the USB class;

6 transmitting, from the first device to the second device, the first  
7 interface descriptor and the second descriptor; and

8 activating the second descriptor in a case where the first device  
9 receives a command for activating the second descriptor from the second  
10 device.

1 24. A data processing method, comprising steps of:

2 providing a first device comprising a storage which stores data therein,  
3 and a communicator having a host-side interface function of a USB;

4 connecting a second device to the first device;

5 selecting one of a plurality of USB classes in accordance with at least  
6 one of a type of the second device and an application executed in the second  
7 device; and

8 transmitting the data, from the first device to the second device,

9 through use of the host-side interface function and based on the selected one  
10 of the USB classes.

1 25. The data processing method as set forth in claim 24, wherein the one  
2 of the USB classes is selected in accordance with a type of a descriptor  
3 transmitted from the second device.

1 26. A first data processing device adapted to be connected to a second  
2 data processing device, the first data processing device comprising:

3 a storage, which stores data therein;

4 a communicator, having a first interface function and a second  
5 interface function defined in an asymmetric interface standard;

6 a first communications processor, operable to transmit the data to the  
7 second data processing device through use of the first interface function;

8 a second communications processor, operable to transmit a signal for  
9 processing the data to the second data processing device through use of the  
10 second interface function; and

11 a controller, which activates the first communications processor, in a  
12 case where the second data processing device having the second interface  
13 function is connected to the communicator, and activates the second  
14 communications processor to transmit the data, in a case where the second  
15 data processing device having the first interface function is connected to the  
16 communicator.

1



1 27. A first data processing device adapted to be connected to a second  
2 data processing device, the first data processing device comprising:  
3 a storage, which stores data therein;  
4 a communicator, having a first interface function and a second  
5 interface function defined in an asymmetric interface standard;  
6 a first communications processor, operable to transmit the data to the  
7 second data processing device through use of the first interface function;  
8 a second communications processor, operable to exchange the data  
9 between the first device and a storage in the second device through use of the  
10 second interface function; and  
11 a controller, which activates the first communications processor to  
12 transmit the data, in a case where the second data processing device having  
13 the second interface function is connected to the communicator, and activates  
14 the second communications processor to exchange the data, in a case where  
15 the second data processing device having the first interface function is  
16 connected to the communicator.

1 28. A first data processing device adapted to be connected to a second  
2 data processing device, the first data processing device comprising:  
3 a storage, which stores data therein;  
4 a communicator, having a device-side interface function of a USB;  
5 and  
6 a communications processor, which transmits the data to the second  
7 image processing device, through use of the device-side interface function and  
8 based on one of a plurality of USB classes which is selected in accordance

9 with at least one of a type of the second data processing device and an  
10 application executed in the second data processing device.

1 29. A first data processing device adapted to be connected to a second  
2 data processing device, the first data processing device comprising:  
3 a storage, which stores data therein;  
4 a communicator, having a host-side interface function of a USB; and  
5 a communications processor, which transmits the data to the second  
6 image processing device, through use of the host-side interface function and  
7 based on one of a plurality of USB classes which is selected in accordance  
8 with at least one of a type of the second data processing device and an  
9 application executed in the second data processing device.

1 30. A data processing system, comprising:  
2 a first data processing device, comprising a storage which stores  
3 data; and  
4 a second data processing device, connected to the first data  
5 processing device to perform processing with respect to the data,  
6 wherein the first data processing device further comprises:  
7 a communicator, having a first interface function and a second  
8 interface function defined in an asymmetric interface standard;  
9 a first communications processor, operable to transmit the data to  
10 the second data processing device through use of the first interface function;  
11 a second communications processor, operable to transmit a signal  
12 for processing the data to the second data processing device through use of

13 the second interface function; and  
14 a controller, which activates the first communications processor, in  
15 a case where the second data processing device having the second interface  
16 function is connected to the communicator, and activates the second  
17 communications processor to transmit the data, in a case where the second  
18 data processing device having the first interface function is connected to the  
19 communicator.

1 31. A data processing system, comprising:  
2 a first data processing device, comprising a storage which stores  
3 data; and  
4 a second data processing device, connected to the first data  
5 processing device to perform processing with respect to the data,  
6 wherein the first data processing device further comprises:  
7 a communicator, having a first interface function and a second  
8 interface function defined in an asymmetric interface standard;  
9 a first communications processor, operable to transmit the data to  
10 the second data processing device through use of the first interface function;  
11 a second communications processor, operable to exchange the  
12 data between the first device and a storage in the second device through use  
13 of the second interface function; and  
14 a controller, which activates the first communications processor to  
15 transmit the data, in a case where the second data processing device having  
16 the second interface function is connected to the communicator, and activates  
17 the second communications processor to exchange the data, in a case where

18 the second data processing device having the first interface function is  
19 connected to the communicator.

1 32. A data processing system, comprising:  
2 a first data processing device, comprising a storage which stores  
3 data; and  
4 a second data processing device, connected to the first data  
5 processing device to perform processing with respect to the data,  
6 wherein the first data processing device further comprises:  
7 a communicator, having a device-side interface function of a USB;  
8 and  
9 a communications processor, which transmits the data to the  
10 second image processing device, through use of the device-side interface  
11 function and based on one of a plurality of USB classes which is selected in  
12 accordance with at least one of a type of the second data processing device  
13 and an application executed in the second data processing device.

1 33. A data processing system, comprising:  
2 a first data processing device, comprising a storage which stores  
3 data; and  
4 a second data processing device, connected to the first data  
5 processing device to perform processing with respect to the data,  
6 wherein the first data processing device further comprises:  
7 a communicator, having a host-side interface function of a USB;  
8 and

9           a communications processor, which transmits the data to the  
10 second image processing device, through use of the host-side interface  
11 function and based on one of a plurality of USB classes which is selected in  
12 accordance with at least one of a type of the second data processing device  
13 and an application executed in the second data processing device.